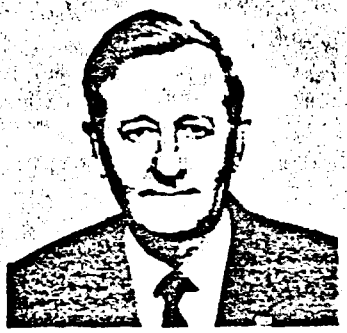
Thursday, September 15, 8:45 A.M.

1. *Tobacco and the Peoples Republic of China*

Dr. William K. Collins
Professor and Philip Morris Extension Specialist (Tobacco)
North Carolina State University, Raleigh, N.C.



Dr. Collins holds B.S. and M.S. degrees from North Carolina State University (NCSU) and the Ph.D. degree from Iowa State University. He worked four years in the Official Tobacco Variety Testing Program at NCSU and three years as an agronomist for R.J. Reynolds Tobacco Co. before joining the Crop Science Department at NCSU in 1966 as an associate professor and extension specialist (tobacco) and has taught a graduate course on tobacco since 1967. He was advanced to professor in 1970 and in 1978 to Philip Morris Extension Specialist. In 1981 he received the Agronomic Education Award from the American Society of Agronomy and was made a fellow by this organization in 1982.

The Peoples Republic of China (PRC) has the potential to become a very important country for international tobacco trade. The PRC tobacco industry needs technical assistance from internationally oriented companies to be able to grow, cure, and process leaf that can be manufactured and marketed in modern cigarettes.

The PRC tobacco industry is changing, however. It is considered to be 30 to 40 years behind the U.S. tobacco industry. Some tobacconists compare the opportunity for development that exists to the one found in Japan more than 30 years ago.

The PRC has a national goal to industrialize and raise incomes. As this is achieved, the potential increases for gains in cigarette consumption. Also, over one-half of the population of one billion people is under 25 years old.

The PRC leadership is encouraging economic development through joining ventures with private foreign firms; rewards for increased productivity; and decentralization of management authority. The country is expected to generate foreign exchange from international trade, particularly from natural resources such as oil and coal.

Labor requirements for field production of flue-cured tobacco are 3,600 hours per acre because only very limited equipment or chemicals are used. Much of the flue-cured tobacco produced in the PRC is considered by many tobacconists to be of poor quality. Cured leaves are characterized as small (8-12 inches long) and narrow (about 6 inches wide), extremely thin with no oil, and have considerable immaturity. Only limited agricultural research is underway to improve the usability of the cured leaf. A large need exists in this area for technical assistance.

Leaf processing and cigarette manufacturing is being done with equipment that is about 50 years old. The cigarette machines make only about 1,000 cigarettes per minute and the efficiency is poor with only about 1,000 cigarettes made per 1.1 kilogram of cured leaf.

Only companies with a patient long-time committment to the PRC market should initiate trade negotiations with the PRC because of the complexity of this business venture. This is especially so since negotiations may not occur at the provincial level.

Source: https://www.industrydocuments.ucsf.edu/docs/sxyf0000

2. *Producing Quality Tobacco Leaf*

Thursday, September 15, 9:20 A.M.

Furney A. Todd
Professor Emeritus
North Carolina State University, Raleigh, N.C.
President, Tobacco Consultants, Inc.

Furney Todd is quite often referred to as "Mr. Tobacco" by his many friends in industry and tobacco growers throughout the U.S. and in several foreign countries. He earned his title through hard work and by conducting successful research, education, and promotional programs in tobacco, at North Carolina State University and more recently through his own organization, Tobacco Consultants, Inc.

His interest in tobacco dates back to his boyhood

days on a tobacco farm near Wendell, N.C. He is a graduate of N.C. State University and organized and operated the Extension Research on Wheels program that involved conducting 60 or more replicated tobacco tests each year on farms in problem fields. This expanded research and demonstration program provided the necessary information for most of the disease control and production practices in current use. One of the highlights of his career was the development of a program of disease management and general production that is quite often referred to as "The System Plan."

Todd has published more than 800 scientific and popular articles on all phases of tobacco production. Recently, he published a book entitled *Flue Cured Tobacco—Producing A Healthy Crop.* The book is unique in that it involves a description of 40 problems (diseases and otherwise) illustrated with 200 color prints and describes some 100 tasks necessary in producing a successful crop. He introduced the calendar system of production in his book and has published an update for both flue-cured and burley types. He also has a daily radio program that provides tobacco information to growers in five states.

Honors in his field include special recognition by several farm groups: man of the year, *Progressive Farmer* (1972); recipient of the Outstanding Extension Award (1972); recognized by TOBACCO INTERNATIONAL as "Man of the Year" 1976; Raleigh *News and Observer* "Tarheel of the Week" (1977). He was named first Philip Morris Extension Specialist, Distinguished Professor of Plant Pathology (1978) and received the Fellow Award, American Phytopathological Society (1978).

Tobacco activities were expanded following retirement from N.C. State University as Distinguished Professor of Plant Pathology in 1981. He organized Tobacco Consultants, Inc. and is now serving as president. Career No. 2 has provided an opportunity to visit and study tobacco of all types in the U.S. and several foreign countries—disease, insect, weed and sucker control, and general production.

What is high leaf quality? Some growers comment that it is the kind of tobacco produced last year or the one before. Others say it is the type of tobacco in high demand. The term is really difficult to define because there are several elements used in describing this characteristic. Ripe or mellow tobacco is better in quality compared with unripe. Open leaf structure is considered better than closed or tight. Strong color intensity is usually associated with a high grade and improved quality as compared with weak or pale. The length, width, amount of waste and uniformity —all contribute to a quality product.

Producing quality leaf is a difficult and season-long job. Several factors contribute, including soil type, disease, insect, weed and sucker control, weather, production practices used (land preparation, fertilization, cultivation), and harvesting and curing methods. Growers have control over some of these inputs but not all. For example, there is not much that can be done about weather except talk about it. Irrigation can be used to offset the effects of both high temperature and drought. Transplanting and certain other practices can be delayed or altered slightly to fit more suitable weather conditions.

The first step for successful and high quality leaf production is to design a disease control program (variety, cropping system, chemical soil treatment) that results in a healthy root system. The second is to build around this plan production inputs that assure a normal yield of high quality leaf. Third, select harvesting (including time, method, and rate) and curing methods that maintain field quality. The final task involves proper sorting or grading and general market preparation.

Technology is a long word that means in simple terms "know-how." The know-how of producing quality leaf is available but interpreting and organizing to fit soil type and weather conditions is a real challenge and worthwhile accomplishment. In summary, quality leaf production is a season long job that involves selecting and completing more than a hundred different tasks correctly and on time.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Thursday, September 15, 9:55 A.M.

3. *Availability of tobacco for modern cigarettes*

Hugh C. Kiger
Executive Vice President
Leaf Tobacco Exporters Association, and
Tobacco Association of United States, Raleigh, N.C.

On July 1, 1975, Hugh C. Kiger was appointed executive vice president of the Leaf Tobacco Exporters Association and the Tobacco Association of United States. He succeeded Judge Malcolm Seawell who retired from this position.

Prior to his present assignment, he was director of the Tobacco Division of the Foreign Agricultural Srvice of the U.S. Department of Agriculture. He served in that position from May, 1961 until his retirement from government on June 6, 1975. In that position he was responsible for directing trade programs, market intelligence, competition studies, trade policy, and other activities designed to expand foreign markets for U.S. tobacco. From 1954 until May, 1961 he was chief of the division's Foreign Marketing Branch. He joined the USDA in 1949 and worked for several years in tobacco market activities with the Farm Credit Administration prior to joining the Foreign Agricultural Service.

He is the author of numerous speeches, articles, and publications on tobacco marketing and international trade. He has personally headed numerous special missions concerned with tobacco prospects and problems in foreign trade. In 1972 he headed a special team which traveled to West Germany and was assigned the task of helping resolve problems relating to pesticide residues on U.S. leaf. In 1973 he was team leader for a mission to the Soviet Union which explored prospects for two-way trade in tobacco.

He was born on a tobacco farm near Winston-Salem, N.C. He received his B.S. degree with high honors in agricultural economics from N.C. State University. He did graduate studies at N.C. State University and the University of North Carolina and received his Ph.D. degree in 1949. During his graduate studies he was awarded a fellowship by the General Education Board of the Rockefeller Foundation and taught agricultural economics and tobacco and cotton marketing at N.C. State.

In 1973 he was named a Tobacco Man of the Year by TOBACCO INTERNATIONAL magazine. In 1974 he was the recipient of the U.S.D.A.'s Superior Service Award for "leadership, professional support, and outstanding performance in developing and preserving foreign markets for U.S. tobacco and in making more effective U.S.D.A. policy and programs for the international tobacco industry." In 1978, he was honored as on of the "Tobacco Greats" by N.C. State University.

He is vice president of the North Carolina Tobacco Foundation, vice chairman of the government's Agricultural Technical Advisory Committee on Tobacco, and a member of the Agricultural Policy Advisory Committee for Trade Negotiations. He is a member of the board of directors of the Tobacco Tax Council, Tobacco Growers' Information Committee, and Tobacco History Foundation. He is a member of the Governor's Advisory Committee on Agriculture, Forestry and Seafood Industry.

Most of the growth in world cigarette output and consequently tobacco production has taken place in this century.

In 1900, U.S. cigarette consumption was only 2.5 billion cigarettes, and per capita consumption was only about 54 pieces annually. U.S. cigarette consumption increased sharply after the introduction of rapid cigarette making machines in the 'teens and consumption has almost doubled since World War II. Total U.S. output of cigarettes is about 700 billion pieces and domestic consumption is now about 634 billion pieces. World cigarette output, which now totals about 4.6 trillion pieces, has followed a pattern similar to the U.S. during this century.

The growth in world cigarette output (excluding China) is increasing at about 2% per year, which is less than half the annual growth rate in the 1960s.

In the period ahead, world cigarette output is expected to increase at about 2% per year. The U.S. and most other developed countries are expected to show little or no growth in cigarette output. Most of the growth in world cigarette output is expected to take place in the developing countries of Asia and Africa.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

World consumption of light cigarette tobacco is expected to expand at a slightly lower rate than world cigarette output. The big question is—which countries will supply this additional leaf?

In recent years, there has been a stronger demand for cigarettes made from light cigarette tobaccos such as flue-cured, burley, and oriental. Thus, production and use of these types has expanded worldwide in recent years. Most of the gains in flue-cured production have taken place in such developing countries as Brazil, Zimbabwe, Malawi, and Thailand.

The U.S. accounted for 80% of the world's production of burley 20 years ago, but its share has now dropped to about 50%. Some of the countries which have stepped up burley production and trade in recent years include Italy, Mexico, South Korea, Greece, Brazil and Malawi.

The rapid shift to filter cigarettes in recent years, the more recent trend toward lower tar and nicotine cigarettes, and the trend toward generic and low-priced cigarettes have all affected both the quality and volume of light tobaccos required to produce a cigarette. Full utilization of the leaf and such processes of puffing, etc., have also adversely affected the amount of leaf required per cigarette.

Major manufacturers around the world have a preference for good quality U.S. flue-cured and burley tobaccos. Use of these types of U.S. tobaccos has been declining in recent years because they have become less price competitive.

If the U.S. can take the necessary steps to produce adequate supplies of good quality leaf at competitive prices the domestic and foreign market for its flue-cured and burley can be expanded. Otherwise, the U.S. will continue to have a smaller share of the world market for these types.

At the present time, it appears that there are adequate supplies of light cigarette tobaccos to meet the needs of manufacturers over the near term.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Thursday, September 15, 10:45 A.M.

4. *Pest control in stored tobacco*

Jeremiah B. Sullivan
President
Degesch America, Inc.

Dr. Sullivan holds B.S. and M.S. degrees from the Massachusetts College of Pharmacy and a Ph.D. degree in pharmaceutical chemistry from the University of Washington. In 1976 Sullivan joined Degesch America, Inc. as president. In this position he is responsible for directing all aspects of the company's business in the U.S. In addition, he is responsible for coordinating all Degesch research worldwide in cooperation with the director of research of the Degesch Research Laboratories in Frankfurt, West Germany. He advises users of pesticides manufactured by Degesch Frankfurt in the U.S.A., Canada, Latin America, the Far East and other countries as requested by the managing and technical director of Degesch Frankfurt. He is also Adjunct Professor of Chemistry at James Madison University.

The tobacco industry has had to face the problem of loss due to insect infestation during storage since the early days of tobacco production. The industry has faced this problem and has effectively used fumigants and other methods of insect control.

We can divide these treatments into three sections, the Yesterday, Today, and Tomorrow aspects of pest control. The Yesterday period saw the use of acrited and hydrogen cyanide. Storages had to be sealed in order to have effective fumigation. During this period, sealing techniques were developed for such storages.

The Today period began in 1969 with the approval of the first aluminum phosphide preparation for tobacco fumigation. This product known throughout the world by its trademark, Phostoxin® revolutionized fumigation of stored tobacco. All tobacco warehouses constructed since the appearance of Phostoxin were designed to be made gas tight to increase the effectiveness of the liberated hydrogen phosphide gas. Also during this period, methyl bromide was used to a great extent in vacuum chamber fumigations of tobacco.

The last two years of this time period have seen the introduction of products to be used in the tomorrow period of insect control. These products are a new metal phosphide impregnated in plastic known in the U.S. as the Fumi-Cel© and a new tablet known as Magtoxin® . These products, again, liberate hydrogen phosphide but at a faster rate once gas release has been initiated. It has been demonstrated that the Fumi-Cel which is not dependent on temperature for gas release is effective in cold weather fumigations of tobacco. This can be an important adjunct for year-round insect control.

We can expect to see more use of pheromones, juvenile hormone inhibitors, and other chemical control products. In addition, we may see the return of products such as carbon dioxide utilized in specially sealed warehouses.

The possibility of temperature controlled warehouses also exists, provided that low cost methods can be found for maintaining cold storage tobacco warehouses.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Thursday, September 15, 11:20 A.M.

3-6

5. *Leaf processing—state of the art*

W. Guy Farmer

W. Guy Farmer was graduated from Virginia Polytechnic & State University in 1950 with a B.S. degree in mechanical engineering. From 1950 to 1953 he was plant engineer for Taylor & Caldwell Inc., Walkerton, Va. He then joined Export Leaf Tobacco Co. as assistant chief engineer. In 1973 he was advanced to chief engineer, and in 1981 he retired. For the past three years he has been a consultant to the leaf processing industry.

Leaf processing (green leaf threshing) has made outstanding progress throughout the world in the last 30 years.

In the area of leaf conditioning we have come from the manual fed wooden apron type ordering machine to continuous revolving cylinders as large as 8 feet in diameter by 32 feet long. These ordering cylinders have auxiliary equipment such as heater fan sets, exhaust fans, special steaming nozzles and pipes that give them the flexible capability of increasing the moisture content of the leaf or decreasing the moisture content with either being accomplished within acceptable leaf temperatures.

A leaf picking conveyor is now most likely to have an electronic picking machine at the discharge end instead of manual pickers on each side. At a production rate of 500 pounds per hour per conveyor one can readily visualize the tremendous labor savings in a sizeable plant with multishift operation.

Threshing and separation has progressed from 30 inch wide threshers and air legs at a capacity of 2,500 pounds per hour to 8 feet wide threshers and separators rated at 25,000 pounds per hour. Pneumatic closed circuit conveying and separation has practically eliminated open belt conveyors and dust bags. Quality improvement has paralleled this increase in production rate through the years.

Apron lamina dryers now routinely dry, cool, and reorder up to 25,000 pounds per hour in a total time of 6-7 minutes. These machines have special insulated panels and provisions to direct a portion of the hot exhaust air from the cooler to serve as makeup air for the drying sections to conserve energy. The dryers have automatic temperature controls for drying and cooling plus automatic moisture control of the lamina exit dryer via high pressure atomized water with continuous moisture meter.

The current automatic lamina presses are quite a contrast to the original water operated uppresses. Dual cylinder/charger presses are custom designed to fill virtually any size and shape container desired with single stroke operation.

Special features such as weigh conveyors, distributors, unique hydraulic systems, and forced air cooling of hydraulic oil all insure efficient operation and energy conservation.

Thursday, September 15, 11:55 A.M.

6. *Casing and drying cased tobacco*

E.W. Hine, II
Proctor & Schwartz, Inc.

Edwin W. Hine II earned his electrical engineering degree at Lehigh University. He served in the Navy during World War II and joined Proctor & Schwartz, Inc. in 1945 as an industrial engineer. He worked in various departments of the company and in 1960 became manager of the special industries group of Proctor's marketing department. This group specializes in tobacco drying machinery as well as rayon dryers and other specialized equipment.

The typical methods widely used to blend tobacco during primary processing will be reviewed. Casing and particularly drying of cased tobaccos will be discussed and reviewed. The importance of flow control and some methods to obtain uniformity of flow control will also be examined.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Friday, September 16, 8:45 A.M.

8. *Fluid bed tobacco drying*

Derek W. Brooks
Managing Director
Hambro Machinery Ltd., Nottingham, England

Derrick W. Brooks has held the post of managing director of Hambro Machinery Ltd., Nottingham, since the company's formation in 1968.

Brooks has an established reputation in the design, manufacture, and development of primary process plant for the tobacco industry, which he has served dynamically since 1950, on a worldwide basis.

The paper will outline the recent development of a basically new tobacco drier, namely the Hambro patented fluidised bed drier, and operational techniques.

The contents will cover: its ability truly to fluidize tobacco products such as cut rolled stem, cut lamina, cigar filler, etc.; the results achieved so far in cigarette factory production as a cut rolled stem drier; all-round improvements over rotary and other air driers; benefits and advantages in simplicity of installation, operation, and maintenance; low energy usage; even and precise control of tobacco output moisture; the elimination of case hardening and the removal of the necessity to add top-up moisture; low degradation; the bonus of substantial product expansion; and the potential further development in other tobacco processes.

Friday, September 16, 9:20 A.M.

9. *Flavor Components for Basic Tobacco Flavor*

Gerd Scheideler
Haarmann & Reimer Corp.

Gerd Scheideler has been working for H&R for 16 years, 12 years specializing in tobacco flavorings. Today he is senior flavorist of the tobacco flavor group.

The worldwide trends towards flavorful cigarettes with reduced values of condensate and nicotine continues.

Since traditional top flavorings alone do not provide the necessary aroma notes, H&R has developed a range of Optapur Tobacco Flavoring Agents (TFA's). These are highly concentrated individual components to increase and/or harmonize the basic tobacco flavor notes. Types include continental, burley, and Virginia. Due to their low dosage, existing values for nicotine and condensate are not increased.

This, plus other positive aspects like heat stability and fixation, allow for widespread use in tobacco, foil, and stems.

This first generation was tailored for the tobacco itself whereas the second generation, to be introduced in the fall of 1983, was developed for flavoring the filters. These products are colorless, sensorically similar to the TFA's mentioned above, and they feature an even flavor release during smoking. The incorporation into the filter is done via triacetin.

All products can be treated as individual building blocks in combination with suitable top flavors. TFA's are natural, derived from tobacco.

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Source: https://www.industrydocuments.ucsf.edu/docs/xxyl0000

7. *Recent trends in tobacco portion autoweighing*

Michael D. Sanderson
Director of Engineering
AMF Legg, Andover, Hants., England

Recent trends in tobacco pre-conditioning

Richard E. G. Neville
AMF Legg, Andover, Hants., England

Michael Sanderson graduated first in chemistry and then in metallurgy.

He was for many years technical director and lately international marketing director of Wilkinson Sword Ltd. He was also responsible for the sale of razor-blade technology and machinery in many parts of the world.

He holds more than 60 patents, mostly related to the coating of surfaces and cutting edges.

He joined AMF Legg 18 months ago as director of engineering.

Accurate portions of tobacco for roll-your-own brands are traditionally weighed by hand in conjunction with an automatic bucket conveying system which transports portions onwards to packaging.

Some automatic machines based upon gravo-mechanical principles, which achieve accuracy by an "add back" of small tobacco, are also available.

This paper describes a totally new technology similar in concept to the method now used for cigarette rod weight control.

Roll your own tobacco is fed down a column into a measuring conveyor consisting of two timing belts, the speed of which is controlled by a computer.

Within the measuring conveyor the density, or mass flow of tobacco, is measured by recording the transmission of gamma radiation from an Americium source with a radiation detector. The analog signal from the detector represents the amount of radiation which has passed through the tobacco and is thus an accurate and continuous measure of density which can be processed by the computer and hence used to control the flow rate.

Individual tobacco portions are cut off by a double sided knife and they will be checked via a checkweigher.

Richard Neville is one of the best known and most experienced innovators in tobacco technology.

He joined AMF Legg more than 35 years ago and during his long career with them has designed and developed many new machines for all aspects of the primary processing of tobacco.

His creativity and flair have earned him more than 100 patents from all parts of the world.

The problem of opening cases or hogsheads of compressed tobacco without degradation is defined and the principles of pre-conditioning stated with particular reference to the difference between adding temporary moisture by condensation from steam and permanent moisture by water spray.

The limitations of the traditional batch processes are compared and a three probe method of improving the probe vacuum process described.

Current continuous methods of pre-conditioning combine conditioning and opening into one continuous process, but at the expense of more leaf degradation.

A new method is described to minimize degradation by conditioning and blowing off each layer of leaf with a saturated air jet. Test results are discussed for both reciprocating and rotary jets alone, and in combination with permanent water addition. Means are proposed for achieving more accurate leaf moistures from the pre-conditioning process.

Uneven packing density, causing "hard spots" rather than high mean densities, is the weak point of all pre-conditioning methods. Attention is drawn to the need for more uniform packing, which would significantly reduce the degradation during opening.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

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Friday, September 16, 9:55 A.M.

10. Characteristics and applications of licorice products in the tobacco industry

Pramathesh S. Vora
MacAndrews & Forbes Co.

Peter Vora is director of research, development, and quality control at MacAndrews Forbes Co. The company is the world's largest producer of licorice products for the tobacco and food industries. Vora is in charge of product and process development, quality control, and technical services for both the domestic and international markets. He has B.S. degrees in chemistry and chemical engineering, and an M.S. degree in chemical engineering from Penn State University. He belongs to Tau Beta Pi, and Phil Lambda Epsilon.

Licorice products, derived from licorice root of the plant *Glycyrrhiza Glabra,* have been in existence for many centuries and have been utilized extensively in American blend cigarettes and other tobacco products for many years. The principal applications of licorice products in the tobacco industry are as flavoring/sweetening agents, moisturizing/wetting agents, and flavor harmonizing agents. The optimum benefits can only be achieved by using premium and consistent quality licorice products derived from the well established, selected stock of raw materials and manufactured under controlled operating parameters. The quality and cost-performance ratio of licorice products should be determined by the ratio of glycyrrhizinglycyrrhizic acid, ratio of sucrose-reducing sugars, elemental analysis and understanding of flavoring characteristics of licorice products. This approach is specific, accurate, and independent of any chemical or other types of modifications of licorice products.

Recently, new licorice products have been developed to be compatible with low and ultra low tar cigarettes. These products are also designed to harmonize the flavor profile of the cigarettes formulated with increased amounts of inferior quality tobacco, reconstituted tobacco sheets, and expanded tobacco stems. In addition, these products have unique physical and chemical characteristics to significantly reduce application costs in the manufacturing process.

Friday, September 16, 10:45 A.M.

11. Developments in the field of near infrared reflectance analyzers

W.M. Pease Jr. and R.J. Jolette
Moisture Systems Corp.

William M. Pease, Jr., studied zoology at the University of Massachusetts in Amherst, Mass. For eight years he worked for W.R. Grace and Co. studying various aspects of the polymer chemistry of paper coatings, adhesives, and container sealants. For the past six years he has been employed by Moisture Systems Corp. concentrating on the application of near infrared analyzers to the process industries.

The introduction of near infrared analyzers and early efforts in the field are summarized. The most recent uses of near infrared analyzers are enumerated and some difficulties are examined in detail.

Projections are made for the future of near infrared reflectance gauges. Higher level functions are discussed and the benefits of a microcomputer based system, the Micro Quad 8000, are examined.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxvl0000

Friday, September 16, 11:20 A.M.

12. *Control of cigarette performance with permeable papers and reconstituted tobacco—the choices to be made*

Dr. William A. Selke
Vice President, Research & Development
Kimberly Clark Technical Paper & Special Products Group
Roswell, Ga.

William A. Selke, vice president, R&D, of the Kimberly-Clark Technical Paper and Specialty Products Group, holds S.B. and S.M. degrees in chemical engineering from M.I.T. and a D. Eng. from Yale. After teaching at Columbia University and working for the Atomic Energy Division of duPont, in 1955 he joined Peter J. Schweitzer, Inc., which in 1957 became a division of the Kimberly-Clark Corp. and he was appointed director of research.

In July, 1982, the Schweitzer Division was merged into a new corporate unit, K-C Technical Paper and Specialty Products. Shortly afterwards, its R&D activities on cigarette papers and reconstituted tobacco were moved from Lee, Mass. to the group headquarters in Roswell, near Atlanta, Ga.

Through choice of the three papers of which cigarettes are constructed—the tipping, the plug wrap, and the cigarette paper, itself—one designing a cigarette today has the opportunity for independent control of many aspects of cigarette performance. The choice of reconstituted tobacco in its many modifications extends that range even further.

Gas phase delivery, puff profile, puff count, and resistance-to-draw, together with, of course, particulate delivery, can be adjusted. Indeed, the degrees of freedom are so numerous as to make decisions difficult.

And, as though the choice of papers were not challenge enough, the selection of modified reconstituted tobacco permits further adjustment of the tobacco blend. Nicotine content can be adjusted, up or down, as can the burning rate. Particulate delivery can be reduced, as can certain gas phase constituted of the smoke.

A generation ago, choosing the tobaccos for the blend was the principal challenge in developing a new cigarette brand.

Today, the availability of these other powerful tools for control makes product development a most complex task.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Friday, September 16, 11:55 A.M.

13. *Quality cigarette manufacture*

John R. Nowers
Product Planning Manager
Molins Tobacco Machinery Ltd., London, England

John R. Nowers has been 34 years with the tobacco industry, initially with BAT on the production side, working mainly in the Far East and Central Africa. He joined Molins in 1964 with sales responsibilities in Western Europe, until made responsible for starting up and managing product planning. This has subsequently involved extensive traveling to cigarette factories in many other parts of the world.

Cigarettes can only be as good as the cut tobacco put into them. However, considerable changes have been made to cut tobacco blends (mainly driven by economic reasons), especially since the early 1970s, with the increased use of expanded tobacco, reconstituted sheet tobacco, etc.

These changes in cut tobacco blends have required changes within the cigarette makers, specifically in the hopper or distributor section. To help understand what happens within the cigarette maker and why changes have been made, cross sections of various types of hopper will be shown, to illustrate technology advancements.

Additionally, again for economic reasons, speed increases have brought with them the potential for greater degradation of the end product. Therefore the handling of the cigarette through the machine, after the hopper, will be an area of exposition.

A question which is often asked is, What is the ideal length of tobacco strands which give the best firmness or filling power? Unfortunately, there is no straight answer to this, because of different characteristics of leaf grades and blends. However, even if one cannot say exactly what it should be, it is possible to identify what it should not be, and examples illustrating possible differences will be presented.

Because the tobacco feed hopper is such a critical part of the maker, one is continually trying to improve it. Two examples of recent improvements are illustrated, the suction enclosure and double winnowing.

The benefits in improved quality and cost savings will be explained.

It is not possible to go into all the detail of the cigarette maker in 30 minutes. A summary of some of the new technology now available will be given, with the possible benefits arising from the use of microprocessors and control and inspection systems.

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Source: https://www.industrydocuments.ucsf.edu/docs/sxyl0000

Friday, September 16, 12:30 P.M.

14. *Filtration of cigarette smoke*

J.V. (Pat) Taylor
Vice President, Sales
American Filtrona Co., Richmond, Va.

J.V. (Pat) Taylor grew up in Richmond, Va. He graduated from Virginia Military Institute with a B.S. in chemistry and taught freshman chemistry there for one year. After a couple of years in the U.S. Army, he returned to school and earned an M.B.A. from the University of Virginia. His work experience includes three years with Rohm and Haas in chemical sales and 11 years at American Filtrona Co., all of which have been mainly spent in filters for the tobacco industry. Currently he is vice president, sales.

To understand filtration of cigarette smoke it is first necessary to examine the important processes related to the formation of cigarette smoke and its composition. This involves pyrolysis, vaporization, condensation, and coagulation. The hot gases formed at the burning coal contain a large number of vaporized compounds having a wide range of boiling temperatures. The temperature of these gases cools as they move through the cigarette. This forms an aerosol, and for filtering purposes we broadly divide smoke into the particulate phase (aerosol) and the gas phase.

Acetate filters are used on about 90% of filtered cigarettes on the market today. They remove only the particulate phase of smoke as the gas phase passes through without any interaction with the filtering medium. The amount removed depends mainly on the draw resistance. The removal of particulates is a mechanical process that depends on the random collision of particulates with the fibers.

Many specialty filters have been developed to provide selective or additional filtration. Although none have rivaled the success of simple cellulose acetate filters in market penetration, they provide a useful role in special applications. Examples of these follow.

Pure cellulose (paper): slightly higher particulate filtration at pressure drops equal to acetate. Addition of carbon: selective removal of the semi-volatile compounds such as acrolein, benezine. SCS: 40% higher particulate removal at equal pressure drops compared to acetate. Air dilution: only practical way currently to remove some of the gase phase. COD: selective removal of the gas phase. High PD/low filtration. MPF: match acetate performance with 15-25% less tow.

Saturday, September 17, 8:45 A.M.

15. *Modern tipping materials, a summary*

John F. Shannon
Vice President, Group Marketing
Mundet Industries Ltd., Manchester England

John F. Shannon joined Gallaher Tobacco Co. (U.K.) in 1964 as an assistant chemist and later as a chemist. For five years he was head of material standards for the Gallaher Group of companies, with responsibility for the writing and maintenance of specifications for all packaging and making materials, used by the group.

In 1975, joined RJR-Macdonald, Inc., in Montreal, Canada, as packaging development manager, and later, value analysis manager.

He joined the Mundet Group in 1979 as vice president, technical services and in 1981 became

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vice president and general manager of Mundet Industries Ltd. in Toronto, Canada. He is currently vice president, group marketing, and having spent one year with the group's Hermetite Division in the U.S., is now based in Manchester, England, with the U.K. Division.

The paper deals with the development of cigarette tipping from the 1940s, when tipping was basically a cosmetic concept, to the present time, when the use of perforated tipping it the most popular method for controlling the tar, nicotine, and carbon monoxide contents of cigarettes.

The different types of perforated tipping currently available are described and brief descriptions of the techniques used for their production are included. The advantages and disadvantages of each type are commented on.

The development of base papers during the past decade and trends in this area are discussed. The need for ongoing paper development, in relation to new generation making machines and perforating techniques, is dealt with.

Finally, the development of on-line porosity monitoring equipment, and the need for the standardization of porosity measuring methods and instruments within the tobacco industry, is discussed.

Saturday, September 17, 9:20 A.M.

16. Cigarette adhesives—state of the art, 1983

Gary R. Tucker
Strategic Business Manager—Tobacco Group
H.B. Fuller & Co., Louisville, Ky.

Gary Tucker has spent 18 years in the industrial adhesive field, all of them with H.B. Fuller. Since graduating from Ball State University with a major in chemistry, Tucker has held positions in his company dealing with all aspects of the cigarette adhesive business, including production, quality control, sales, and management.

Tucker is currently the strategic business manager for the tobacco industry with H.B. Fuller, heading a small group of specialists concentrating specifically on this important industry. He is responsible for all company services to the manufacturers of tobacco and related products.

Tucker is married, residing with his wife Carolyn, and their two children, in Louisville, Ky. He has held membership in such organizations as Tappi, the Packaging Association of Louisville, and the American Society of Quality Control.

I. Basic adhesive types used in the cigarette industry.
II. The 10-plus different adhesives used in cigarette manufacture.
III. Important physical characteristics of cigarette adhesives and how they relate to product performance.
IV. Changes in component cigarette materials and how they affect the performance of adhesives.
V. Cigarette making and packing machinery evolution and how it affects the choice of adhesives.
VI. Present and future limitations of the various adhesives used in cigarette manufacturing.
VII. Current trends in adhesive formulation for cigarette manufacturing to address trends in the industry.

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Saturday, September 17, 9:55 A.M.

17. *Automated quality control*

Dr. F.S. Bryant
Senior Account Manager/
AccuRay Corp., Columbus, Ohio

Dr. F.S. Bryant, B.S.E.E., The Citadel; M.S.E.E., Clemson University; Ph.D. E.E., University of Florida, is currently senior account manager for AccuRay Corp. and represents the company to major cigarette companies in the United States. He joined AccuRay in 1975. In addition to working with the cigarette industry, he has experience in process control in the metals, textiles, and carpet industries.

Prior to his association with AccuRay, Dr. Bryant was director of applications engineering, corporate R & D for Burlington Industries. He has on many occasions been an invited speaker-lecturer for the Institute of Electrical and Electronic Engineers in the subject area of real-time monitoring and process control. Dr. Bryant holds patents in the fields of data monitoring and electron gun design.

Dr. Bryant is a registered professional engineer in the states of Florida and South Carolina. He is also a graduate of the American Management Association's Managers School.

This presentation begins by examining the importance of quality control in manufacturing international-style cigarettes. Included in this introduction is a discussion of the relationship between automated quality control and certain aspects of productivity.

Several examples from the secondary manufacturing processes are used by Dr. Bryant to describe how automated quality control systems are implemented. Using these examples, he also explains how substantial cost savings can result from application of these systems.

At the conclusion of his presentation, Dr. Bryant discusses briefly the value of information, a by-product of automation systems.

Information can be used effectively to improve quality in cases where automation cannot be applied economically.

Saturday, September 17, 10:45 A.M.

18. *Trends in instrumentation for cigarette and filter testing*

Keith O. Holland
Technical Director
Filtrona Instruments and Automation Ltd., Milton Keynes, England

Keith Holland, technical director of Filtrona Instruments & Automation Ltd., is a qualified mechanical and electrical engineer.

After seven years with the Marconi Co. and two years in computerized printing, he joined Filtrona as a process development engineer. For the past 16 years he has worked on the design and production of instruments for the filter and cigarette industries.

In his spare time, he is a radio ham.

Good product quality requires the application of reliable measuring techniques. This theme will be explored with reference to the evolution of measurement needs and changes in instrument technology.

As the broad emphasis of new cigarette design has passed from unfiltered, through filtered, to ventilated brands, the parameters of interest to manufacturers and researchers have changed accordingly.

Available instrumentation will be illustrated with particular attention to the differences in measurement needs dictated by local conditions in different parts of the world.

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Saturday, September 17, 11:20 A.M.

19. *High speed cigarette packaging*

Dr. Carlo Grossi
Sales Manager & Tobacco Operations Coordinator
G.D Societa per Azioni, Bologna, Italy

Dr. Carlo Grossi, sales manager and tobacco operations coordinator for G.D Societa per Azioni, is a mechanical engineering graduate of the University of Bologna.

The Italian company G.D is a relatively new machine supplier to the tobacco industry, having entered the picture in the mid-1950s with its 4350/PACK groups, which opened a new era in the forming of cigarette packs. It claims to produce 10-packs and 25-packs, soft and hinged-lid, at the highest production speeds and efficiencies, with systems that are not traditional for cigarette manufacturing. G.D also considers that a maker/packer seems inevitable.

We can expect G.D to discuss this and other packaging developments that will be of great interest to the conference.

Saturday, September 17, 11:55 A.M.

20. *The total package*

N.S. Cardamone
Product Manager
Hercules Inc., Wilmington, Del.

Nichola S. Cardamone, a native of Clarksburg, W. Va., received a B.S. degree in mechanical engineering from Virginia Polytechnic Institute in Blacksburg in 1956.

He began his career with Hercules as a development engineer at Allegany Ballistics Laboratory (ABL), Cumberland, Md., in 1961. He was named project engineer in 1965. Later that year, he transferred to Bacchus, Utah, as project engineering supervisor. Cardamone returned to ABL as senior development engineer in 1966.

In 1967, he came to corporate headquarters, Wilmington, Del., as development engineer, fibers and film, and was named sales engineer the next year. He joined the Northeastern regional office in Richmond, Va. as a development engineer for tobacco films in 1968. The following year, he was advanced to senior sales engineer, tobacco films. In 1974, he was advanced to district sales manager, tobacco films.

He assumed his current position in 1982.

A review of the "total package" concept is made considering the interaction of the many groups involved and also the future development of the physical total package using new products.

- The introduction of the polypropylene plastic film into the cigarette market is overviewed through the joint efforts of the cigarette manufacturers, material suppliers, and machinery suppliers.

Packaging designs using an opaque polypropylene film are presented. The presentation covers improved graphics and product protection.

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Saturday, September 17, 12:30 P.M.

21. *Smoking and Health*

James E. Morris
Morris Associates, Inc.
Tappahannock, Va.

James E. Morris is president of Morris Associates, Inc. founded in 1968 to provide consulting services to the world tobacco industry which he has served for nearly 40 years in more than 30 different countries.

He was educated in London schools and university to be a mechanical engineer. His tobacco experiences include 23 years with Molins as a manager and executive in London and Richmond, where he supervised many famous developments and operations for them. He was later appointed divisional vice president of the AMF World Tobacco Group for the U.S. and Canada and successfully directed them for six years. He has assisted a variety of reputable organizations to resolve problems related to the industry.

He is a special volunteer executive for the International Executive Service Corps., working for many months in the Far East and in South America assisting developing tobacco manufacturers to improve their products and organizations. He is author of "This Tobacco Business," a continuing series of articles published by TOBACCO INTERNATIONAL.

Anti-smoking campaigns, encouraged by the record decline in cigarette smoking in the UK, are now hoping to extend their campaigns into the developing countries or the third world. It is reported that the campaigns want to damage the cigarette manufacturers usage as much as their profits.

This discussion will attempt to review the effects of anti-smoking campaigns, to evaluate the source of the statements and claims made by the campaigners, to make an assessment of the progress made in the cancer researches, and to provide guidelines for countries which have not been subjected to anti-smoking campaigns.

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